

Applicants : Yingru Wu, et al.
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Amendments to the Claims

Please amend the claims by replacing all prior listings of claims with the listing of claims below pursuant to 37 C.F.R. §1.121:

Listing of Claims:

1-116. (Cancelled)

117. (New) A method of altering fibre initiation and/or elongation in a fibre producing plant comprising genetically manipulating the plant such that the production of a polypeptide comprising consecutive amino acids whose sequence is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38, is increased when compared to a wild-type fiber producing plant, wherein the polypeptide is produced in the wild-type fiber producing plant at or around anthesis.

118. (New) A method of altering fibre initiation and/or elongation in a fibre producing plant comprising genetically manipulating the plant such that the production of a polypeptide comprising consecutive amino acids whose sequence is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38, is reduced when compared to a wild-type fiber producing plant, wherein the polypeptide is produced in the wild-type fiber producing plant at or around anthesis.

119. (New) The method of claim 117 or 118, wherein the polypeptide comprises consecutive amino acids whose

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sequence is set forth in SEQ ID NO: 12.

120. (New) The method of claim 117, wherein the genetic manipulation comprises exposing the plant to a vector which comprises a nucleotide sequence encoding a polypeptide comprising consecutive amino acids whose sequence is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38.
121. (New) The method of claim 118, wherein the genetic manipulation comprises exposing the plant to an antisense polynucleotide or a catalytic polynucleotide which hybridizes to an mRNA molecule encoding the polypeptide, and/or exposing the plant to a dsRNA molecule that specifically down-regulates levels of an mRNA molecule encoding the polypeptide, such that the level of the polypeptide produced by the plant is reduced.
122. (New) The method of claim 121, wherein the genetic manipulation is exposing the plant to the dsRNA molecule and the dsRNA molecule is double-stranded over at least 19 basepairs whose sequence corresponds to a consecutive sequence set forth in SEQ ID NO: 38, or to a consecutive sequence which is at least 95% identical to the sequence set forth in SEQ ID NO: 38.
123. (New) The method of claim 117 or 118, wherein the plant is a species of the Genus *Gossypium*.
124. (New) A process of assessing the potential of a fibre producing plant to produce fibre, the process comprising

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analyzing the plant for a genetic variation in a polynucleotide whose sequence is at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 38, wherein the polynucleotide is produced in a wild-type fibre producing plant at or around anthesis, and/or analyzing the plant for a genetic variation in a polypeptide which is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38.

125. (New) The method of claim 124, wherein the polypeptide comprises consecutive amino acids whose sequence is set forth in SEQ ID NO: 12.

126. (New) A substantially purified and/or recombinant polypeptide selected from the group consisting of:

i) a polypeptide comprising consecutive amino acids whose sequence is set forth in SEQ ID NO: 12, and

ii) a polypeptide comprising consecutive amino acids whose sequence is at least 95% identical to the amino acids sequence set forth in SEQ ID NO: 12.

127. (New) An isolated and/or exogenous polynucleotide comprising a polynucleotide selected from the group consisting of:

i) a polynucleotide comprising consecutive nucleotides whose nucleotide sequence is set forth in SEQ ID NO: 38;

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ii) a polynucleotide comprising consecutive nucleotides whose sequence is at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 38;

iii) a polynucleotide which encodes a polypeptide comprising consecutive amino acids whose sequence is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38; and

iv) a polynucleotide which hybridizes to any one of i) to iii), under high stringency conditions.

128. (New) A polynucleotide which is:

i) a catalytic polynucleotide capable of cleaving a polynucleotide whose sequence is at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 38, or

ii) a dsRNA molecule comprising a polynucleotide which is double-stranded over at least 19 basepairs whose sequence corresponds to a consecutive sequence set forth in SEQ ID NO: 38, or to a consecutive sequence which is at least 95% identical to the sequence set forth in SEQ ID NO: 38.

129. (New) A vector comprising or encoding the polynucleotide of claim 127.

130. (New) A vector comprising or encoding the polynucleotide of claim 128.

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131. (New) A host cell comprising the vector of claim 129.
132. (New) A host cell comprising the vector of claim 130.
133. (New) A transgenic plant, the plant having been transformed with the polynucleotide of claim 127.
134. (New) A transgenic plant, the plant having been transformed with the polynucleotide of claim 128.
135. (New) The transgenic plant of claim 133, which when compared to an isogenic non-transgenic plant, produces a modified level of a polypeptide comprising consecutive amino acids whose sequence is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38.
136. (New) The transgenic plant of claim 135, wherein the polypeptide comprises consecutive amino acids whose amino acid sequence is set forth in SEQ ID NO:12.
137. (New) The transgenic seed of the plant of claim 133.
138. (New) The transgenic seed of the plant of claim 134.
139. (New) A process for producing fibre comprising obtaining the transgenic plant of claim 133 so as to thereby produce the fibre.
140. (New) A process of breeding a fibre producing plant having a polypeptide comprising consecutive amino acids

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whose sequence is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38, the process comprising analyzing the plant for a genetic variation in a polynucleotide whose sequence is at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 38, and/or analyzing the plant for a genetic variation in a polypeptide which is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38, and breeding the fibre producing plant.

141. (New) A process of selecting from a breeding population a fibre producing plant with altered fibre initiation and/or elongation potential, the method comprising:

- i) crossing two plants which have differing potential to produce fibre so as to produce progeny plants,
- ii) performing on the progeny plants a process comprising analyzing the plant for a genetic variation in a polynucleotide whose sequence is at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 38, and/or analyzing the plant for a genetic variation in a polypeptide which is at least 95% identical to the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO: 38, and
- iii) selecting a progeny plant with altered fibre initiation and/or elongation potential when compared to a parent plant.

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142. (New) A process for identifying an agent which alters fibre initiation and/or elongation of a fibre producing plant, the method comprising:

- i) exposing a polynucleotide comprising consecutive nucleotides whose sequence is at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 38 to a candidate agent, and
- ii) assessing the ability of the candidate agent to hybridize and/or cleave the polynucleotide.